



100 Years of Progress...

# Engineering Open House

University of Illinois, Urbana  
March 16-17, 1962



## WELCOME VISITORS

Each year the shortage of well-trained engineers in this country becomes more critical. Because this is a national as well as an individual company problem, both national and private groups are striving to meet it. Thus, the students and faculty of the University of Illinois College of Engineering have joined together in a combined effort to display the aspects and advantages of a technical education and career.

As you walk through our campus, noting the various exhibits, we hope you will gain an insight of just what engineering is, what its advantages are, and what challenges it faces in the future.

The students of the College who have planned and prepared Engineering Open House join with the faculty who have supported and advised them in welcoming you to this 1962 Open House, and in praising you for your technical interest and awareness.

Ralph B. Gilbert  
*Student General Chairman*

Prof. E. C. McClintock  
*College Adviser*

Dean W. L. Everitt  
*College of Engineering*

### Student Vice-Chairmen

Gary Daymon  
*Publicity*  
Robert Yackel  
*Art and Design*  
Mark Barmann  
*Secretary-Treasurer*

Ed Snyder  
*Coordinations*  
Wally Cwik  
*JETS Liaison*  
David Dudek  
*Company Liaison*

George Puzey  
*Departmental*  
Jerry Jargon  
*Physical Arrangements*  
Orval Fairbairn  
*High School Publicity*

## COLLEGE INFORMATION DISPLAY

Main Lounge - Illini Union

Engineering Open House Headquarters is located in Room 124 of the Illini Union Building, and may be reached via University telephone extension 8391. Information concerning Engineering Open House and the College of Engineering will be available at this location during Open House hours, which are 10:00 A.M. to 9:00 P.M. on Friday, March 16 and 9:00 A.M. to 5:00 P.M. on Saturday, March 17.

The Tau Beta Pi honorary society will display textbooks used in College Engineering courses, and will answer questions concerning the college, curriculum, and student preparation. The Sigma Tau honorary society will display the many scholarships available, will answer questions concerning eligibility requirements, and will outline both scholarship and enrollment application procedures.

## Departmental Exhibits

### AERONAUTICAL AND ASTRONAUTICAL ENGINEERING

#### Propulsion and Dynamics

Ramjet; Rockets; Crypto-Compressor; Analog Computer; Orbital Trajectory.

#### Aerodynamics

Supersonic Wind Tunnel; Subsonic Wind Tunnels; Flutter Demonstration; Hypersonic Shock Tube; Aerodynamic Heating of Atmosphere Re-Entry Body.

#### Aerospace Structures

Structural Component; Photoelastic Demonstration-Rocket Solid Propellant Material Properties.

#### Low Speed Flight Display

Aeromobile 200-1 Peripheral Jet Ground Effect Vehicle.

### AGRICULTURAL ENGINEERING (Burrill Avenue)

#### Power and Machinery

Agricultural Power Units; Machinery Components; Farm Implements—Old vs. New.

#### Electric Power and Processing

Automated Feed Handling; Electric Controls for Agriculture\*; Environment Control for Livestock.

#### Soil and Water Control

Raindrop Formation\*; Tile Seepage (Model)\*; Pond Control Structure (Model); Surveying Equipment.

#### Farm Structures

Modern Farmsteads, Farmhouses\*; Joints in Farm Construction; Livestock Housing\*.

### CERAMIC ENGINEERING

#### Ceramic Bodies

Simpson Mixer; Dry Mixing; Dry Pressing; Extruding Machine.

#### Kilns and Smelters

Kiln with Optical Pyrometers; Crucible Smelter.

#### Ceramic Technology

Refractories; Structural Clay Products; Electrical Ceramic Components; Vitreous and Semi-Vitreous Bodies; Porcelain Enamels; Glass Workings; Clevite Spark Pump; \*Thermoelectric Magnet; \*Projection of Domain Structure.

### CHEMICAL ENGINEERING

#### Equipment

Radio-Chemistry; Double Effect Evaporator; Glass Distillation Unit; Rotary Filter; Catalytic Cracking Unit; Unit Operations and Equipment.

### Miscellaneous

Chemical Magic Show; Chemical Pop; Movies; Auto-quiz.

### CIVIL ENGINEERING

#### Construction Engineering

Modern construction techniques; Electronic computers for job scheduling.

#### Highway, Traffic & Railway Engr.

Modern highway model, traffic signals and controls, films.

#### Hydraulic & Sanitary Engineering

Water resources development exhibit; Water and waste water treatment.

#### Structural Research & Engineering

Static and dynamic testing; blast loading; prestressed concrete.

#### Soil Mechanics & Foundation Engr.

Quick sand demonstration; types of foundations; soil testing equipment.

#### Surveying & Photogrammetry

Surveying instruments; stereoplating device; display of surveying at U. of I.

### DIGITAL COMPUTER LABORATORY

Binary Half Adder; \*Decoding Circuit; \*Binary Adder Circuit; \*Principles of Binary Operations Display; Demonstration of Illiac Computer; IBM 650 Demonstrated and Displayed.

\*—Featured New Exhibits



## ELECTRICAL ENGINEERING

### Communications

Broadcast Transmitter; Log-Periodic and Spiral Antennas\*; Microphones—Time-Varying Parameters\*; Radio Location Studies\*; Radio Telescope; Remote Control Systems; Satellite Communications\*; Voice Transmission on a Light Beam; WPGU, Student Radio Station.

### Electronics and Electromagnetism

Analog Computer; Digital Computers; Educated Whale; Ghost Writer; Industrial Electronics Exhibit; Lie Detector; Ozzie Scope-face; Sonar Demonstration; Talking Dog.

Basic Electromagnetic Concepts; Generalized Electromagnetic Machine; Magnetic Cannon; Magnetohydrodynamic Generator\*; Strength Tester.

### Miscellaneous

Charged - Particle Propulsion and Trajectories\*; Engineering—A Career for Tomorrow\*; Graphical Field Mapping\*; Intelligent Machines; Ionospheric Studies by Moon Reflections\*; Neurosurgery\*; One-Wire Control; Optical Masers\*; Paradoxes of Faraday's Law\*; Periodic Wave Forms\*; Radio-Controlled Ball; Stroboscope\*; Tesla Coil; Tin-Can Motor; Van de Graaff Electrostatic Generator.

## GENERAL ENGINEERING (Transportation Building)

### Engineering Design

Student Demonstrations on Problem Solving; Graphic Aids and Illustrating Methods; Air Brushing; Drawing Distribution System.

### Special Topics

U. S. Patent Off. Display\*; United Drawing System\*; Gauging .000002"\*; Movie — "Design for Production"\*; Model — Industrial Chemical Plant\*; Engineering Journals of 1862\*; 1964 Aircraft Model\*; Photodrawings."

## INDUSTRIAL & MECHANICAL ENGINEERING

### Foundry

Demonstrations of Molding: Core Making, Melting of Iron and Aluminum, Pouring and Shaking Out.

### Power Lab.

Displays of Power Equipment such as: Compressors, Air Conditioners, Steam Turbines, and Steam Engines.

### Physical Environment Lab.

Display of Equipment and Instruments used in Determining Human Response to the Effects of Temperature, Pressure, Humidity, and Air Motion.

## Metal Working

Welding; Heat Treatment of Metal.

### Fields of Interest

Internal Combustion Engine; Gas Turbines; Drilling of Square and Hexagonal Holes; Machine Shop Design and Operations; the Use of a Dynamometer to Weigh People. Time and Motion Study; Safety Engineering; Plant Layout; Material Handling.

## METALLURGY

### Processes

Metal Tempering; Induction Furnace; Rolling Mill.

### Metal Structures

Electron Microscope; Phase Transitions in Solids; A Mechanical Model of a Crystal; Refining Techniques for Super-Pure Crystals; Crystals at Liquid Nitrogen Temperature.

### Miscellaneous

Fabrication of Metals from Powders; Micro-Photographs of Metal Surfaces; Demonstration of the Thermocouple.

\*—Featured New Exhibits

## MINING ENGINEERING (Mining Laboratory)

### Models

Five Different Mining Methods; Roof Bolts; Ventilation of Mines; Automatic Hoist; Underground Stope Using a "Slusher Hoist" for Loading Ore; Dutch State Mines Heavy Media Cyclone\*.

### Processes

Mineral Processing Equipment; the use of "Black Light" in Prospecting for Fluorescent Minerals; Safety Lamps—Old and New.

## NUCLEAR ENGINEERING

### Nuclear Processes (M. E. Lab.)

100 KW Boiling-Water Loop; Uranium and Light-Water Subcritical Assembly; Uranium-Graphite Subcritical Assembly.

### Nuclear Reactor

Triga Mark II Nuclear Reactor rated at 100 KW steady state operation and 250 Megawatts pulsed operation.

## PETROLEUM ENGINEERING (Mining Laboratory)

### Sources and Equipment

Model Oil Reservoir; Model Oil Drilling Rig; Oil Well Surveying Truck and Equipment.

## PHYSICS

### Low Temperature Physics

Liquefied Gases, 200° below zero.

### Nuclear Physics

Spark chamber for cosmic rays; Geiger Counters; Trajectory mapping of high energy particles.

### Electricity and Magnetism

Measuring the speed of light directly; Microwave interference.

### Optics

Color spectra from gaseous discharge; Ultraviolet rays.

### Betatron

(Physics Research Lab.)

Electromagnetic acceleration of electrons to form a narrow beam of Beta rays, then used to generate high-voltage X-rays and to transmute elements.

## THEORETICAL AND APPLIED MECHANICS (Talbot Laboratory)

Information booth—First floor landing, Wright Street (West) Entrance.

### Stresses and Strains

Three Million Pound Test Machine—Hourly concrete cylinder tests Friday and Saturday. Closed circuit TV explanation preceding tests.

## Hydraulics

Hydraulic Jump; Orifices; Water Bell; Impulse Turbines; Reaction Turbine; Wind Tunnel Studies; Model Dam.

## Metals and Fatigue

Rotating Beam Fatigue Machines; High Temperature Axial Fatigue Machine; Low Temperature Torsion Embrittlement; Controlled Cyclic Strain Rate Equipment; Cumulative Damage Investigation.

## Miscellaneous

Materials Testing; Statics, Dynamics, and Vibrations Display; Engineering Mechanics Club. Information on Engineering Mechanics Curriculum.

\*—Featured New Exhibits



Visitors converting human energy to electromagnetic energy.



## R.O.T.C. UNITS

### Army Engineers

Demonstrations and displays of engineering equipment and methods.

### Army Signal Corps

Film: Signal Research and Development; Display showing latest Signal Corps developments.

### Army Ordnance

Missile models; "Law" antitank weapon; M14 rifle; MGD machine gun; XM97 grenade launcher; film on new weapons.

### Naval Science

Naval Engineering and Weapons Systems; Naval Science Training Apparatus; Modern Aviation Missiles, and Submarine Display; Motion Pictures on Naval Air and Sea Power\*.

### JETS

The Junior Engineering Technical Society (JETS) will present displays on the second floor of the Illini Union Building. These displays represent both individual and project high school student achievements in engineering fields.

### Society of Women Engineers

The women engineering students at the University of Illinois will present displays in Room 121 Electrical Engineering Building.

## Mathematics

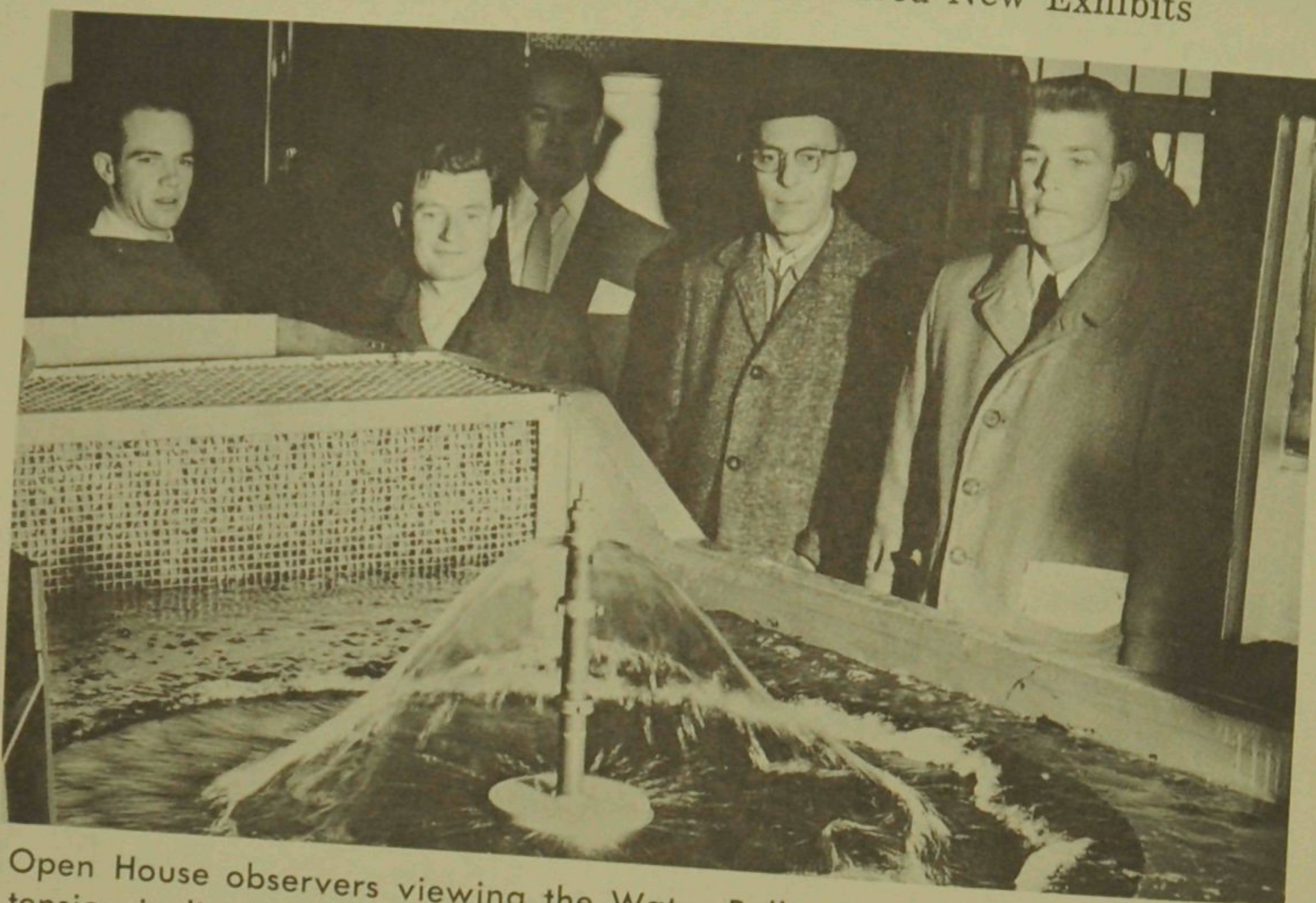
Sigma Tau will present a display of fields of mathematics and their practical applications to engineering. This display is located in the Electrical Engineering Building.

### Guided Bus Tours

Free buses will leave every half hour from the corner of Mathews and Green

Streets for the Betatron, power plant, and the Illinois Central Railroad exhibit. A locomotive and display cars will be spotted on the University siding near Abbott Power Plant at the Stadium Drive underpass. Tau Beta Pi guides on the buses will indicate points of special interest en route.

### \*—Featured New Exhibits



Open House observers viewing the Water Bell—a manifestation of surface tension in liquids.

## DEPARTMENTAL OPEN-HOUSE REPRESENTATIVES

### Coordinating Committee

#### FACULTY ADVISERS

Prof. S. M. Yen  
Prof. D. G. Jedele  
Prof. C. G. Bergeron  
Prof. D. D. Perlmutter  
Mr. S. L. Paul  
Prof. W. W. Lichtenberger  
Prof. W. J. Poppelbaum  
Prof. R. A. Davidson  
Prof. W. L. Shick  
Mr. H. L. Schmidt  
Prof. G. R. Eadie  
Prof. D. F. Hang  
Prof. V. S. Tuman  
Prof. R. M. Thomson  
Prof. L. J. Koester  
Prof. G. J. Moyer  
Capt. Phil H. Bradley  
Maj. W. H. Fogel  
Maj. R. K. Younger  
Maj. H. J. Rapley  
Lt. R. L. Baldwin  
Prof. F. E. Holmes  
(Prof. J. P. Neal  
Chairman)

#### DEPARTMENT

Aero. & Astro. Engineering  
Agricultural Engineering  
Ceramic Engineering  
Chemical Engineering  
Civil Engineering  
Coordinated Science Lab.  
Digital Computer Lab.  
Electrical Engineering  
General Engineering  
Mechanical Engineering  
Mining Engineering  
Nuclear Engineering  
Petroleum Engineering  
Physical Metallurgy  
Physics  
TAM  
Army Engineers ROTC  
Army Ordnance  
Army Signal Corps  
Air Force ROTC  
Naval ROTC  
Mathematics

#### SENIOR

Curtis Vail  
Jerome Bradley  
W. J. Muhlstadt  
Richard Lazarski  
Robert N. Leslie  
Mike Leavitt  
Gabor Ujhelyi  
Rod Elmore  
Ralph Hocking  
Jim Rice  
Lanny Richter  
Kodati Subba Rao  
Joseph Thrasher  
Vonne Linse  
James M. Potter  
Vance Lenzi  
T. S. Parkhurst  
Donald R. Vonnahue  
Jack Hudson  
Dennis Matelozz  
Terry Stringer  
Eugene Sterbis

#### JUNIOR

Gerald Gustafson  
James Lovett  
Cliff Ruderer  
David Earls  
Bernard Klingenberg

Ed. Dornseif  
Ken Mowe  
Robert Latko

Allen Klunder

The scientific illustration of Leonardo Da Vinci, contrasted with the molecular structure typifying engineering progress today, gives us the theme for Engineering Open House 1962, "100 Years of Progress." Cover by Karen Nina Bunde.



